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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PARSONS, THOMAS H

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,932

Applicant(s)

GOSSELINK ET AL.

Examiner

Thomas H Parsons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the specification is not within the range of 50 to 150 words, and uses legal phraseology such as "said". Accordingly, the abstract should be amended as appropriate

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or

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REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).
"Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1: It is unclear as to what embodiments are being set forth in the claim. The recitations "when hydroprocessed product is to be recovered" in lines 15 and 16, and "if it is to be recovered" in lines 18 and 23 render the claim unclear as to whether a hydroprocess product is to be recovered. "When" and "if" appears to be optional language. Claims 2-32 are rejected as they are dependent upon claim 1.

Claim 24: The recitation "if the latter is not to be recovered" render the claim unclear as to whether a hydroprocessed product is to be recovered.

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6. Claim 13 recites the limitation "the watergas-shift step" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-13, 15, 18-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edlund et al. (6,383,670), and further in view of Yamase et al. (5,284,717).

Because of the indefinite language as addressed above and the "or" language in line 19, the Examiner has interpreted the method comprising: a) subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a subjected catalyst, with hydrogen produced from at least part of the hydroprocessed product; b) subjecting all of the hydrotreated feedstock to a treatment of produce hydrogen and subsequently subjecting all of the hydrogen to a treatment of product electricity, or subjecting part of hydrotreated feedstock to a treatment to produce electricity and a part of the remainder to a treatment with hydrogen.

Claim 1: Edlund et al. in Figure 2, 3-5 and 7-8 disclose a method (10) for producing hydrogen (52), a byproduct (42) and electricity (52) from a hydrocarbon feedstock which method comprises subjecting the hydrocarbon feedstock to a treatment, separating a byproduct from the feedstock, subjecting the remaining hydrocarbon feedstock to a treatment (34) to produce hydrogen, and subjecting the hydrogen to a treatment to product electricity (14) or subjecting all

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of the feedstock to a treatment to product electricity and at least a part of the remainder to a storage device (col. 2: 16-30; col. 3: 49-col. 4: 65; col. 5: 16-32; col. 6: 5-12; col. 7: 66- col. 8: 13; col. 8: 44-col. 9: 26).

Edlund et al. disclose that any suitable feedstock may be used as is known in the art, and any other fuel processors and feed assemblies may be used; Edlund et al. do not disclose producing a hydroprocessed product from a hydrocarbonaceous feedstock which comprises subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the present of a support catalyst and subjecting a remainder of the hydrogen to a treatment with hydrogen.

Yamase et al. in Figures 1 and 2 disclose producing a hydroprocessed product from a hydrocarbonaceous feedstock which comprises subjecting the hydrocarbonaceous feedstock (naptha, kerosene and LPG which are the same as those instantly disclosed) to a treatment with hydrogen in the present of a support catalyst (col. 1: 63-66) (col. 1: 50-col. 4: 61).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Edlund et al. by incorporating the raw material, the desulfurizer and the adsorber of Yamase et al. because Yamase et al. teach an improved cracking and deulfurizing step utilizing catalysts that improve the cracking rate thereby enabling the use of more diverse source fuels for generating electricity thereby improving the overall electricity generation process and providing energy savings.

As to the recitations "at least a fraction which has a boiling point range which is the same or higher than the boiling point range of the hydroprocessed product to be produced" in lines 3-6, and "which hydrogen has been produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of

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the hydrocarbonaceous feedstock from which the hydroprocessed product will be produced" in lines 8-13, the method of the Edlund et al. combination would obviously provide the claimed boiling point range as the feedstock is the same as that instantly disclosed.

The Edlund et al. combination does not disclose subjecting a remainder of the hydrogen to a treatment with hydrogen. Edlund et al. teaches a control system that can be adapted to automated the operation of fuel processing and the entire fuel processing system (pumps, valves, communication pathways other than those shown in Figure 2) (col. 2: 57- col. 3: 20; col. 3: 34-48; and col. 4: 66-col. 5: 11). Therefore, in light of the teaching of Edlund et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the method of the Edlund et al. combination to provide for subjecting a remainder of the hydrogen to a treatment with hydrogen and for recovering hydroprocessed feedstock it is to be recovered.

Claim 2: The rejection is as set forth above wherein the feedstock of the Edlund et al. combination would obviously provide feedstocks ranging from those having an initial boiling point of about ambient to those having a final boiling point of about 650 °C because the feedstocks of the Edlund et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a support catalyst is the same as that instantly disclosed.

Claim 3: The rejection is as set forth in claim 1 wherein the feedstock of the Edlund et al. combination would obviously provide feedstocks having a boiling point range such that their 90 % boiling point lies in the range between about 400 °C and about 600 °C because the feedstocks of the Edlund et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a

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treatment with hydrogen in the presence of a support catalyst is the same as that instantly disclosed.

Claim 4: The rejection is as set forth in claim 1 wherein the feedstock of the Edlund et al. combination would obviously provide feedstocks having a sulphur content of not more than 5 %wt. because the feedstocks of the Edlund et al. combination are the same as that instantly disclosed.

Claim 5: The rejection is as set forth in claim 1 wherein the feedstock of the Edlund et al. combination would obviously provide hydrocarbonaceous feedstock containing between 5 % wt and about 40 %wt of material having a boiling point range which is that same as or higher than the boiling point range of the hydroprocessed product to be produced because the feedstocks of the Edlund et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a support catalyst is the same as that instantly disclosed.

Claim 6: The rejection is as set forth in claim 1 wherein the feedstock of the Edlund et al. combination would obviously provide hydrocarbonaceous feedstock containing between 5 % wt and about 40 %wt of material having a boiling point above the final boiling point of the hydroprocessed product because the feedstocks of the Edlund et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a support catalyst is the same as that instantly disclosed.

Claim 7: The rejection is as set forth in claim 1 wherein the feedstock of the Edlund et al. combination would obviously provide kerosene and or gas oil as hydroprocessed product(s) from the hydrotreated feedstock because the feedstocks of the Edlund et al. combination and the step

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of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a support catalyst is the same as that instantly disclosed.

Claim 8: The rejection is as set forth in claim 1 wherein Edlund et al. further disclose that part or all of the non-recovered material from the treatment with hydrogen is subjected to a catalytic oxidation process which produces hydrogen and carbon dioxide (col. 3: 62-col. 4: 13; and col. 6: 5-12).

Claim 9: The rejection is as set forth in claims 1 and 8 wherein Edlund et al. further disclose that the catalytic oxidation process comprises a catalytic partial oxidation process (col. 3: 62 - col. 4: 13; and col. 6: 5-12).

Claim 10: The rejection is as set forth in claims 1 and 8 wherein Edlund et al. further disclose that hydrogen not used in the hydrotreatment step is used at least partially to produce electricity by feeding it (stream 52) to a fuel cell (10) which is operated to deliver electricity and water (steam) (Figure 3; col. 2: 41-56; and col. 4: 41-53).

Claim 11: The rejection is as set forth in claims 1, 8 and 10 wherein Edlund et al. further disclose that the electricity in excess of that need for the utilities of the process is produced from excess hydrogen (col. 2: 31-40; and col. 4: 45-53).

Claim 12: The rejection is as set forth in claims 1, 8 and 10 wherein Yamase et al. in Figures 1 and 2 disclose that at least part of the steam needed in the hydrogen manufacturing unit is provided by the fuel cell.

Claim 13: The rejection is as set forth in claim 1 wherein Edlund et al. further disclose that the products are produced from no feedstocks other than the hydrocarbon feedstock and water used in the watergas-shift step (col. 7: 66 - col. 8: 14).

Claim 15: The rejection is as set forth in claim 1 wherein Yamase et al. further disclose using a catalyst system which is the same as that instantly disclosed, and therefore would obviously be capable of converting at least about 50 %wt per pass of the material.

Claim 18: The rejection is as set forth in claim 1 wherein Yamase et al. further disclose that the treatment with hydrogen is carried out at a temperature between about 100 °C and about 550 °C (abs.; and col. 1: 37-40).

Claim 19: The rejection is as set forth in claim 1 wherein Yamase et al. further disclose that the treatment with hydrogen is carried out at a pressure of up to 400 atmospheres (col. 1: 39 wherein 1-10 kg/cm² equates to approximately 1-10 atmospheres).

Claim 20: The rejection is as set forth in claim 1 wherein the Edlund et al. further discloses that the fuel cell is operated to produce excess electricity (col. 2: 31-40).

Claim 21: The rejection is as set forth in claims 1, 8, and 9 wherein the Edlund et al combination would obviously generate the internal needs on hydrogen and electricity for the process as the catalytic partial oxidation step and the fuel cell are operated the same as instantly disclosed.

Claim 22: The rejection is as set forth in claims 1, 8, and 9 wherein the Edlund et al combination would obviously have produced a hydrogen generated by the catalytic partial oxidation step from hydrocarbons containing at most 4 carbon atoms present in the hydrocarbonaceous feedstock as the feedstock and the manner in which the catalytic partial oxidation step is operated is the same as that instantly disclosed.

Claim 23: The rejection is as set forth in claims 1, 8, and 9 wherein the Edlund et al combination would obviously have produced a hydrogen generated by the catalytic partial

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oxidation step from hydrocarbons having about 4 or less carbon atoms as the feedstock and the manner in which the catalytic partial oxidation step is operated is the same as that instantly disclosed.

Claim 24: The Edlund et al. combination does not disclose that the hydrogen is separated off from the hydrotreated feedstock prior to the hydrogen manufacturing step. However, Edlund et al. teaches a control system that can be adapted to automated the operation of fuel processing and the entire fuel processing system (pumps, valves, communication pathways other than those shown in Figure 2) (col. 2: 57- col. 3: 20; col. 3: 34-48; and col. 4: 66-col. 5: 11). Therefore, in light of the teaching of Edlund et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the method of the Edlund et al. combination to provide for separating hydrogen off from the hydrotreated feedstock prior to the hydrogen manufacturing step.

Claim 25: The rejection is as set forth in claim 1 wherein the feedstock of the Edlund et al. combination would obviously provide feedstocks having a sulphur content of below 3 % wt. because the feedstocks of the Edlund et al. combination are the same as that instantly disclosed.

Claim 26: The rejection is as set forth in claim 1 wherein Edlund et al. further disclose that the products are produced from no feedstocks other than the hydrocarbon feedstock and water used in the watergas-shift step (col. 7: 66 - col. 8: 14).

Claims 27-29: The rejection is as set forth in claim 1 wherein the Edlund et al. combination discloses that hydrogen is produced from no feedstocks other than the hydrocarbonaceous feedstock and water used in the water-shift step (claim 27), that carbon dioxide is produced from no feedstocks other than the hydrocarbonaceous feedstock and water

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used in the water-shift step (claim 28), and that that electricity is produced from no feedstocks other than the hydrocarbonaceous feedstock and water used in the water-shift step (claim 29).

Claim 30: Claim 15: The rejection is as set forth in claim 1 wherein Yamase et al. further disclose using a catalyst system which is the same as that instantly disclosed, and therefore would obviously be capable of converting at least about 65 %wt per pass of the material.

Claim 31: Claim 18: The rejection is as set forth in claim 1 wherein Yamase et al. further disclose that the treatment with hydrogen is carried out at a temperature between about 100 °C and about 550 °C (abs.; and col. 1: 37-40).

Claim 32: Claim 19: The rejection is as set forth in claim 1 wherein Yamase et al. further disclose that the treatment with hydrogen is carried out at a pressure of between about 10 and 200 atmospheres (col. 1: 39 wherein 1-10 kg/cm² equates to approximately 1-10 atmospheres).

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edlund et al., and further in view of Yamase et al. as applied to claim 1 above, and further in view of O'Brien (5,681,540).

Edlund et al. and Yamase et al. are as applied, argued, and disclosed above, and incorporated herein.

The Edlund et al. combination does not disclose converting the hydrogen sulfide generated by the treatment with hydrogen into elemental sulphur by conventional means.

O'Brien in Figure 1 discloses converting the hydrogen sulfide into elemental sulphur by conventional means wherein the source of hydrogen sulfide may be from any source (col. 3: 50 - col. 6: 13).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Edlund et al. combination by incorporating the hydrogen sulfide conversion step of O'Brien because O'Brien teaches a convention means for converting the hydrogen sulfide into elemental sulphur that would have recovered sulfur at lower temperatures thereby reducing energy requirements and lowering overall operating costs.

10. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edlund et al., and further in view of Yamase et al as applied to claim 1 above, and further in view of Fukuoka et al. (6,190,430).

Edlund et al. and Yamase et al. are as applied, argued, and disclosed above, and incorporated herein.

The Edlund et al. combination does not disclose a catalyst containing zeolite beta as active component wherein the catalyst is capable of converting at least 90 %wt per pass of the fraction to be treated.

Fukuoka et al. disclose a catalyst containing zeolite beta as active component. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Edlund et al combination by substituting the zeolite catalyst with the catalyst of Fukuoka et al. because both are concerned with removing carbon monoxide contained in a hydrogen containing gas and Fukuoka et al. teach a catalyst that would have provided for the effective removal of carbon monoxide contained in the hydrogen

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containing gas thereby making it possible to highly efficiently operate the fuel cell at a low temperature and lower overall operating costs.

As to the recitation "catalyst capable of converting at least 90 %wt per pass of the fraction to be treated", because the catalyst disclosed by Fukuoka et al. is the same as that instantly claimed, it would obvious provide the claimed conversion capability.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (703) 306-9072. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Thomas H Parsons
Examiner
Art Unit 1745



STEPHEN M. LIND
PATENT EXAMINER
DATE 1/7/00
